CLAIMS

1. Use of a compound that – when tested in an *in vitro* proliferation assay – has an activity that corresponds to at least about 50% of the activity of SEQ ID NO 2 when tested in the same assay under the same conditions for the manufacture of a pharmaceutical composition for prophylaxis and/or treatment of conditions caused or characterized by abnormal loss of cells.

2. Use according to claim 1, wherein the abnormal loss of cell is a degeneration of neuronal cells, or a loss of astrocytes or oligodendrocytes.

3. Use according to claim 1 or 2, wherein the abnormal loss of cells is caused by traumatic, asphyxial, hypoxic, ischemic, toxic, infectious, degenerative or metabolic insults.

4. Use according to any of claims 1-3, wherein the conditions are selected from the group comprising Parkinson's disease, Alzheimer's disease, stroke, multiple sclerosis, asphyxia or hypoxia, heart failure, heart infarction, arthrosis or arthritis, skin disease and burn injuries, diabetes, liver diseases or failure, muscle diseases or damages, pancreatic dysfunction, and diseases caused by prions, such as Creutzfeld-Jacob's disease, scrapie and bovine spongiform encefalitis (BSE).

5. Use according to any of the preceding claims, wherein the abnormal loss of cells is caused by insults to the central or peripheral nervous system.

6. Use according to claim 4, wherein the conditions are selected from the group consiting of Parkinson's disease, Alzheimer's disease, stroke, multiple sclerosis, amyotrophic lateral sclerosis, asphyxia or hypoxia, epilepsy, and diseases caused by prions, such as Creutzfeld-Jacob's disease, scrapie and bovine spongiform encefalitis (BSE).

7. Use according to any of the preceding claims, wherein the compound has an activity that corresponds to at least about 55%, such as, e.g., at least about 60%, at least about 65%, at least about 70%, at least about 75%, at least about 80%, at least about 85%, at least about 90%, at least about 92%, at least about 94%, at least about 96%, at least about 98% or at least about 99% of the activity of SEQ ID NO 2.

8. Use according to any of the preceding claims, wherein the compound has an activity that corresponds to at least about 100%, such as, e.g., at least about 110%, at least about 120%, at least about 130%, at least about 140%, at least about 150%, at least about 160%, at least about 170%, at least about 180%, at least about 190%, or at least about 200% of the activity of SEQ ID NO 2.

9. Use according to any of the preceding claims, wherein the compound is identical to SEQ ID NO 2.

10. Use according to any of claims 1-8, wherein the compound has an identity corresponding to at least about 75% such as, e.g., at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98% or at least about 99% to SEQ ID NO 2.

11. Use according to any of claims 1-8 or 10, wherein the compound is similar to SEQ ID NO 2.

12. Use according to any of claims 1-8 or 10, wherein the compound has a similarity corresponding to at least about 75% such as, e.g., at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98% or at least about 99% to SEQ ID NO 2.

13. Use according to any of claims 1-8, wherein the compound is SEQ ID NO 2, analogues or fragments thereof.

14. A compound that – when tested in an *in vitro* proliferation assay – has an activity that corresponds to at least about 50% of the activity of SEQ ID NO 2 when tested in the same assay under the same conditions with the proviso that the compound is not SEQ ID NO 2 or basic fibroblast growth factor bFGF.

15. A compound according to claim 14 for medicinal use.

16. A compound according to claim 14 for use in the prophylaxis and/or treatment of conditions caused by abnormal loss of cells.

17. Use of an antagonist to GIP for the prophylaxis and/or treatment of conditions caused or characterized by hyperproliferation of cells.

18. Use of an antibody against GIP for the prophylaxis and/or treatment of conditions caused or characterized by hyperproliferation of cells

19. Use of an antagonist to the GIP receptor for the preparation of a pharmaceutical composition for the prophylaxis and/or treatment of conditions caused or characterized by hyperproliferation of cells.

20. Use according to any of claims 17-19, wherein the conditions are selected from neoplastic or cancer diseases such as, e.g., melanoma, non-small-cell lung cancer, small-cell lung cancer, lung cancer, hepatocarcinoma, retioblastoma, astrocytoma, glioblastoma, leukemia, neuroblastoma, pre-neoplastic lesions such as adenomatous hyperplasia and prostatic intraepithelial neoplasia, carcinoma in situ, cancer in the gum, tongue, head, neck, breast, pancreas, prostate, kidney, liver, bone, thyroid, testicle, ovary, mesothelia, cervix, gastrointestinal tract, lymphoma, brain, colon, sarcoma and bladder.

21. Use according to any of claims 17-19, wherein the conditions are selected from tumor-associated diseased, rheumatoid arthritis, inflammatory bowel disease, osteoarthritis, leiomyomas, adenomas, lipomas. hemagioomas, fibromas, vascular occlusion, retenosis, atherosclerosis, oral hairy leukoplasia, benign prostatic hyperplasia, or psoriasis.

22. Use of a compound that - when tested in an assay as described in Example 9, wherein rats are given the compound intraventricularly in the brain, followed by the recordation of the weight of each rat – has an activity in reducing weight gain that corresponds to at least about 50% of the activity of SEQ ID NO 2 or SEQ ID NO 4 when tested in the same assay under the same conditions using a compound having SEQ ID NO 2 or SEQ ID NO 4 as a control, for the manufacture of a pharmaceutical composition for the prophylaxis or treatment of overweight and/or obesity.

23. Use of a compound according to claim 22, wherein the pharmaceutical composition further comprises a carrier allowing the transport of the compound across the blood brain barrier.

24. Use according to claim 22 or 23, wherein the compound has an activity that corresponds to at least about 55%, such as, e.g., at least about 60%, at least about 65%, at least about 70%, at least about 75%, at least about 80%, at least about 85%, at least about 90%, at least about 92%, at least about 94%, at least about 96%, at least about 98% or at least about 99% of the activity of SEQ ID NO 2 or SEQ ID NO 4.

25. Use according to any of claims 22-24, wherein the compound has an activity that corresponds to at least about 100%, such as, e.g., at least about 110%, at least about 120%, at least about 130%, at least about 140%, at least about 150%, at least about 160%, at least about 170%, at least about 180%, at least about 190%, or at least about 200% of the activity of SEQ ID NO 2 or SEQ ID NO 4.

26. Use according to any of claims 22-25, wherein the compound is identical to SEQ ID NO 2 or SEQ ID NO 4.

27. Use according to any of claims 22-25, wherein the compound has an identity corresponding to at least about 75% such as, e.g., at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98% or at least about 99% to SEQ ID NO 2 or SEQ ID NO 4.

28. Use according to any of claims 22-25 or 27, wherein the compound is similar to SEQ ID NO 2 or SEQ ID NO 4.

29. Use according to any of claims 22-25 or 27, wherein the compound has a similarity corresponding to at least about 75% such as, e.g., at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98% or at least about 99% to SEQ ID NO 2 or SEQ ID NO 4.

30. Use according to any of claims 22-29, wherein the compound is SEQ ID NO 2 or SEQ ID NO 4, analogues or fragments thereof.

31. A compound that – when tested in an assay as described in Example 9, wherein rats are given the compound or a compound having SEQ ID NO 2 or SEQ ID NO 4 intraventricularly in the brain, followed by the recordation of the weight of each rat – has an activity in reducing weight gain that corresponds to at least about 50% of the activity of SEQ ID NO 2 or SEQ ID NO 4 when tested in the same assay under the same conditions.

32. A compound according to claim 31 for medicinal use.

33. A compound according to claim 32 for use in the prophylaxis and/or treatment of overweight and/or obesity.

34. A method of prophylaxis and/or treatment of overweight and/or obesity, the method comprising administering a pharmaceutical composition comprising a compound according to any of claims 31-33 by an intraventricular route.

35. A cosmetic method for reducing body weight, the method comprising administering to a composition comprising a compound according to any of claims 31-33.

36. Use of an antagonist to GIP for the manufacture of a pharmaceutical composition for the prophylaxis and/or treatment of conditions caused or characterized by abnormally low body weight.

37. Use of an antibody against GIP according to claim 36, for the prophylaxis and/or treatment of conditions caused or characterized by abnormally low body weight.

38. Use of an antagonist to the GIP receptor for the manufacture of a pharmaceutical composition for the prophylaxis and/or treatment of conditions caused or characterized by abnormally low body weight.

39. Use according to any of claims 36-38, wherein the condition is selected from anorexia, cachexia, AIDS- or cancer-related wasting, and failure to thrive syndrom in newborn and young children.

40. A pharmaceutical composition comprising a compound according to any of claims 14-16 or 31-33 together with one or more pharmaceutically acceptable excipients.

41. Use of a compound having SEQ ID NO 2 or analogues, functional analogues or fragments thereof for the manufacture of a pharmaceutical composition for prophylaxis and/or treatment of depression and/or mood disorders.

42. A method for determining an abnormal level of GIP in the brain of a mammal.

43. A method according to claim 42 for diagnosis, disease monitoring and/or therapeutic monitoring of a disease characterized by an abnormal amount of GIP in the brain.

44. A method according to claim 42 or 43, wherein the level of GIP in the brain of a subject is low compared to a healthy subject.

45. A method according to claim 42 or 43, wherein the level of GIP in the brain of a subject is high compared to a healthy subject.